AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 1, line 13, as follows:

In optical transmission systems, the user traffic is carried by one or more channels traveling between a transmitter and a receiver in optical format. The receiver task is to convert the optical signal back into an electrical format and to extract the user signal. A channel is defined as a carrier wavelength modulated with a user signal. Ideally, a light pulse (representing a digital "1") is a surge of light of a certain power at wavelength $\lambda 0$; in fact, the pulse of light has a certain "width" comprised of a small range of wavelengths about the central wavelength, so that a channel has a certain width as shown in Figure 1A.

Please amend the paragraph beginning at page 4, line 28, as follows:

a) The current networks have a point-to-point architecture that uses span equalization, so that the existing dispersion measuring methods can provide accurate dispersion measurements for a span, which is a relatively short ~~lengths~~ length of fiber (100-150km) and does not include optical amplifiers.

Please amend the paragraph beginning at page 7, line 26, as follows:

Figure 3A shows a plurality of eye diagrams for [[the]] a two-colour signal obtained from simulations for six detuning values;

Please amend the paragraph beginning at page 9, line 7, as follows:

An optical transmitter unit **2** located at the transmit node generates a two-colour optical signal **4**. Transmitter unit **2** comprises a first optical source **1** for generating a first carrier wavelength $\lambda 1$ and a second optical source **1'** for generating a second carrier wavelength $\lambda 2$. Sources **1, 1'** may be CW laser diodes or the like. The two wavelengths are combined in a

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modulator **3** so that the bit patterns on both carrier fields are phase-synchronized. The combiner **12** can be any such well known device connected at the input of the modulator **3**. The modulator can be a Mach-Zehnder; the modulating signal source is shown at **5**. It is to be noted that ~~modulation~~ modulating signal source **5** and modulator **3** may realize any modulation format, amplitude, phase, frequency-shift keying (ASK, PSK, FSK) or any combinations of these.

Please amend the paragraph beginning at page 13, line 20, as follows:

Figure 5C shows the dispersion profile versus wavelength $D(\lambda)$, calculated as in EQ1 from a fit for the $\tau(\lambda)$ dependency of Figure 5B. A second order polynomial fit for the $\tau(\lambda)$ dependency can be determined from Figure 5B. Figure 2 shows generically block **22** that determines a, b and c from $\tau(\lambda)$ graph **20**. Block [[**20**]] **22** can be again a software module:

$$\tau(\lambda) = a + b(\lambda - \lambda_{ref}) + c(\lambda - \lambda_{ref})^2 \qquad \text{EQ5}$$

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